



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/551,967

10/05/2005

Yucheng Li

CN 030009

3577

24737

7590

12/05/2006

PHILIPS INTELLECTUAL PROPERTY & STANDARDS

P.O. BOX 3001

BRIARCLIFF MANOR, NY 10510

EXAMINER

AMINZAY, SHAIMA Q

ART UNIT

PAPER NUMBER

2618

DATE MAILED: 12/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/551,967

Applicant(s)

LI ET AL.

Examiner

Shaima Q. Aminzay

Art Unit

2618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 11-16, 21 and 22 is/are rejected.
- 7) ☒ Claim(s) 5-10 and 17-20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 October 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Drawings Objections

1. Figure 7 is not viewable, corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory

Art Unit: 2618

double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 1-22 (Li et al., hereinafter '1,967) are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 3, 12, 14, and 18 of US Application 10/547,586 (Sun et al., hereinafter '586). Although the conflicting claims are not identical, they are not patentably distinct from each other because:

Regarding claims 1 and 13, Sun ('586) discloses a "method for wireless communication systems to maintain uplink synchronization in P2P communication, comprising: overhearing the P2P communication between two UEs (user equipments); computing the characteristic parameter of each UE according to the overheard information transferred by each UE during P2P communication; determining the SS (synchronization shift) information of each UE according to the computed characteristic parameter of each UE; and transmitting the determined SS information to the corresponding UE via the downlink common control channel so that said UE can maintain uplink synchronization", and an "system for wireless communication systems to maintain uplink synchronization in P2P communication, comprising: an

Art Unit: 2618

overhearing unit, for overhearing the P2P communication between two UEs; a computing unit, for computing the characteristic parameter of each UE according to the overheard information transferred by each UE in P2P communication; an SS information generating unit, for determining the SS information of the UE according to the computed characteristic parameter of each UE; and a transmitting unit, for transmitting the determined SS information to the corresponding UE via the downlink common control channel so that the UE can maintain uplink synchronization" (page 4 right-column, page 5 left-column, and right-column, claims 1, and 12).

Regarding claims 11 and 21, Sun ('586) discloses a "method for wireless communication systems to maintain uplink synchronization in P2P communication, comprising: overhearing the P2P communication between two UEs (user equipments); computing the characteristic parameter of each UE according to the overheard information transferred by each UE during P2P communication; determining the SS (synchronization shift) information of each UE according to the computed characteristic parameter of each UE; and transmitting the determined SS information to the corresponding UE via the downlink common control channel so that said UE can maintain uplink synchronization", and "a transceiver, for receiving or transmitting radio signals; a monitoring unit, for monitoring the downlink common control channel; a receiving unit, for receiving the SS information transferred via the downlink common

Art Unit: 2618

control channel; and an adjusting unit, for adjusting the TA for the UE to transmit signals according to the received SS information" (page 4 right-column, page 5 left-column, claims 1, and 18).

The cited reference has more limitations, thereby encompassing the present application's limitations.

Furthermore, omission of an element and its function in combination is obvious expedient if remaining elements perform same functions as before in re KARLSON (CCPA) 136 USPQ 184 (1963).

For these reasons, independent claims 1, 11, 13, and 21 are rejected. Claims 2-10, 11, 14-20, and 22 are dependent of claims 1, 11, 13, and 21 are rejected on the ground of nonstatutory obviousness-type double patenting under the same reasons set forth in claims 1, 11, 13, and 21.

4. Claims 1-22 (Li et al., hereinafter '1,967) are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 9, and 16 of US Application 10/ 557,967 (Zhang et al., hereinafter '7,967). Although the conflicting claims are not identical, they are not patentably distinct from each other because:

Regarding claims 1 and 13, Zhang ('7,967) discloses a "method for canceling interference signals brought by introducing P2P (Peer to Peer) communication in wireless communication systems, performed by a network system, comprising: (i) receiving a call request from a user equipment in a cell for communicating in UP-BASE STATION-DOWN mode; (ii) judging whether there is an appropriate link timeslot in the several available timeslots for the user equipment to avoid being interfered by P2P signals transmitted by the chosen user equipments allocated in the appropriate timeslot when the user equipment communicates in the appropriate timeslot, according to the relative position of the user equipment and the chosen user equipments in P2P communication in the cell; and (iii) approving the call request from the user equipment and allocating the appropriate timeslot to the user equipment if the appropriate timeslot is available", a "method for canceling interference signals brought by introducing P2P (Peer to Peer) communication in wireless communication systems, performed by the network system, comprising: receiving a call request from a user equipment in the cell for communicating with the other user equipment in P2P communication mode; judging whether P2P communication can be established between the user equipment and said the other user equipment, according to information of the user equipment and the other user equipment; allocating the user equipment and the other user equipment with timeslots for forward link and backward link, wherein the timeslots occupied respectively by the forward link and downward link are exclusively occupied by the user equipment and the other user

equipment, if the requirement for P2P communication establishment can be satisfied", and a "network system for canceling interference signals brought by introducing P2P(Peer to Peer) communication in wireless communication systems, comprising: a receiving means, for receiving call request from a user equipment in a cell for communicating with the other user equipment in P2P communication mode; a judging means, for judging whether P2P communication between the user equipment and the other user equipment can be established, according to information of the user equipment and the other user equipment; an allocating means, for allocating the user equipment and the other user equipment with timeslots for forward link and backward link, wherein the timeslots respectively occupied by the forward link and downward link are exclusively occupied by the user equipment and the other user equipment, if the requirement for establishing P2P communication can be satisfied" (page 7, left-column, right-column, page 8, left-column, and right column, claims 1, 9, and 16).

Regarding claims 11 and 21, Zhang ('7,967) discloses a "method for canceling interference signals brought by introducing P2P (Peer to Peer) communication in wireless communication systems, performed by a network system, comprising: (i) receiving a call request from a user equipment in a cell for communicating in UP-BASE STATION-DOWN mode; (ii) judging whether there is an appropriate link timeslot in the several available timeslots for the user equipment to avoid being interfered by P2P signals transmitted by the chosen

user equipments allocated in the appropriate timeslot when the user equipment communicates in the appropriate timeslot, according to the relative position of the user equipment and the chosen user equipments in P2P communication in the cell; and (iii) approving the call request from the user equipment and allocating the appropriate timeslot to the user equipment if the appropriate timeslot is available”, and a “method for canceling interference signals brought by introducing P2P (Peer to Peer) communication in wireless communication systems, performed by the network system, comprising: receiving a call request from a user equipment in the cell for communicating with the other user equipment in P2P communication mode; judging whether P2P communication can be established between the user equipment and said the other user equipment, according to information of the user equipment and the other user equipment; allocating the user equipment and the other user equipment with timeslots for forward link and backward link, wherein the timeslots occupied respectively by the forward link and downward link are exclusively occupied by the user equipment and the other user equipment, if the requirement for P2P communication establishment can be satisfied” (page 7, left-column, right-column, and page 8, left-column, claims 1, and 9).

The cited reference has more limitations, thereby encompassing the present application's limitations.

Furthermore, omission of an element and its function in combination is

obvious expedient if remaining elements perform same functions as before in re
KARLSON (CCPA) 136 USPQ 184 (1963).

For these reasons, independent claims 1, 11, 13, and 21 are rejected. Claims 2-10, 11, 14-20, and 22 are dependent of claims 1, 11, 13, and 21 are rejected on the ground of nonstatutory obviousness-type double patenting under the same reasons set forth in claims 1, 11, 13, and 21.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –
(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-4, 11-12, 13-16, and 20-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Belcea (Belcea, U.S. Patent No. 7,079,509).

Regarding claim 1, Belcea discloses a method for supporting P2P (Peer to Peer) communication between two user equipments in TDD CDMA systems (see for example, Figures 2-12, column 1, lines 19-22, column 2, lines 28-53, column

3, lines 7-21, column 4, lines 11-34, Peer-to-Peer communication between 2 terminals (ATs, User Equipments) in a TDD CDMA systems), performed by user equipment (see for example, Figures 2-12, column 1, lines 19-22, column 2, lines 28-53, column 3, lines 7-21, column 4, lines 11-34, the terminals (ATs, User Equipments) performing Peer-to-Peer communications in a TDD CDMA systems), comprising: receiving signals transferred via the downlink control channel by network system (see for example, Figures 3,4, column 2, lines 19-53, column 12, lines 35-59, column 13, lines 10-17, the network (gateway) transfers control signals via downlink to the terminals, and the terminals receive the signals); acquiring the timeslot allocation information according to the received signals (see for example Figures 2, 6, column 1, lines 57-67, column 2, lines 1-3, lines 28-45, column 9, lines 7-21, column 10, lines 1-6, column 4, lines 11-34, column 5, lines 4-42, lines 57-61, column 9, lines 50-67, the timeslots (TS) locations with respect to received information); acquiring the spreading code allocation information of other active user equipments allocated in the specific downlink timeslot associated with the direct link used by said user equipments, according to the received signals (see for example Figures 2, 6, column 1, lines 57-67, column 2, lines 1-3, lines 19-53, column 4, lines 11-34, column 5, lines 4-42, lines 57-61, column 9, lines 7-21, lines 50-67, column 12, lines 35-59); and reducing the interference caused by signals transferred via downlink from network system to said other user equipments during P2P communication according to the acquired timeslot allocation information and spreading code

Art Unit: 2618

allocation information (see for example, *Figures 2-12, column 1, lines 19-22, column 2, lines 28-53, column 3, lines 7-21, column 4, lines 11-44, column 8, lines 3-41, column 9, lines 60-67, column 10, lines 1-6*).

Regarding claim 11, Belcea discloses a method for supporting P2P communication between two user equipments in TDD CDMA systems (see for example, *Figures 2-12, column 1, lines 19-22, column 2, lines 28-53, column 3, lines 7-21, column 4, lines 11-34, Peer-to-Peer communication between 2 terminals (ATs, User Equipments) in a TDD CDMA systems*), the steps taken by network system comprising: sending the timeslot allocation information to the two users equipment conducting P2P communication via downlink control channel (see for example *Figures 2, 6, column 1, lines 57-67, column 2, lines 1-3, lines 28-45, column 9, lines 7-21, column 10, lines 1-6, column 4, lines 11-34, column 5, lines 4-42, lines 57-61, column 9, lines 50-67*); generating spreading code allocation information corresponding to each downlink timeslot of timeslot allocation information (see for example *Figures 2, 6, column 1, lines 57-67, column 2, lines 1-3, lines 19-53, column 4, lines 11-34, column 5, lines 4-42, lines 57-61, column 9, lines 7-21, lines 50-67, column 12, lines 35-59*); and sending said spreading code allocation information to the two user equipments via downlink control channel respectively (see for example *Figures 2, 6, column 1, lines 57-67, column 2, lines 1-3, lines 19-53, column 4, lines 11-34, column 5, lines 4-42, lines 57-61, column 9, lines 7-21, lines 50-67, column 12, lines 35-*

59), in order to synchronize the P2P communication signals received by each of the two UE with the signals from network system (see for example *Figures 2, 6, column 1, lines 57-67, column 2, lines 1-3, lines 19-53, column 4, lines 11-34, column 5, lines 4-42, lines 57-61, column 9, lines 7-21, lines 50-67, column 12, lines 35-59*).

Regarding claim 13, Belcea discloses a user equipment for supporting P2P (Peer to Peer) communication in TDD CDMA systems (see for example, *Figures 2-12, column 1, lines 19-22, column 2, lines 28-53, column 3, lines 7-21, column 4, lines 11-34, Peer-to-Peer communication in TDD CDMA systems*), comprising: a signal transceiver (see for example, *Figures 2-12, column 1, lines 19-67, column 2, lines 1-3, lines 28-53, column 3, lines 44-53, column 23, lines 55-67, column 24, lines 26-31, signal transceiver*), for receiving and transmitting radio signals (see for example, *Figures 2-12, column 1, lines 19-67, column 2, lines 1-3, lines 28-53, column 3, lines 44-53, column 23, lines 55-67, column 24, lines 26-31, signal transceiver*); a timeslot allocation information acquiring means for acquiring the timeslot allocation information according to the information transferred via downlink control channel (see for example *Figures 2, 6, column 1, lines 57-67, column 2, lines 1-3, lines 28-45, column 9, lines 7-21, column 10, lines 1-6, column 4, lines 11-34, column 5, lines 4-42, lines 57-61, column 9, lines 50-67*); a spreading code allocation information acquiring means for acquiring the spreading code allocation information of other active user

equipments in a specific downlink timeslot which is used when the UE is receiving signals via the direct link between the UE and the other one (see for example *Figures 2, 6, column 1, lines 57-67, column 2, lines 1-3, lines 19-53, column 4, lines 11-34, column 5, lines 4-42, lines 57-61, column 9, lines 7-21, lines 50-67, column 12, lines 35-59*), according to the information transferred via downlink control channel (see for example, *Figures 3,4, column 2, lines 19-53, column 12, lines 35-59, column 13, lines 10-17*); and a interference reducing means for reducing the interference caused by downlink signals transmitted from network system to other user equipments during P2P communication process according to the acquired timeslot allocation information and spreading code allocation information (see for example, *Figures 2-12, column 1, lines 19-22, column 2, lines 28-53, column 3, lines 7-21, column 4, lines 11-44, column 8, lines 3-41, column 9, lines 60-67, column 10, lines 1-6*).

Regarding claim 21, Belcea discloses a network system for supporting P2P communication between two user equipments in TDD CDMA systems (see for example, *Figures 2-12, column 1, lines 19-22, column 2, lines 28-53, column 3, lines 7-21, column 4, lines 11-34, Peer-to-Peer communication between 2 terminals (ATs, User Equipments) in a TDD CDMA systems*), comprising: a timeslot allocation information sending means for sending the timeslot allocation information to the two user equipments in P2P communication via downlink control channel (see for example *Figures 2, 6, column 1, lines 57-67, column 2,*

Art Unit: 2618

lines 1-3, lines 28-45, column 9, lines 7-21, column 10, lines 1-6, column 4, lines 11-34, column 5, lines 4-42, lines 57-61, column 9, lines 50-67); a spreading code allocation information generating means for generating the spreading code allocation information corresponding to each downlink timeslot in the timeslot allocation information (see for example Figures 2, 6, column 1, lines 57-67, column 2, lines 1-3, lines 19-53, column 4, lines 11-34, column 5, lines 4-42, lines 57-61, column 9, lines 7-21, lines 50-67, column 12, lines 35-59); and a spreading code allocation information sending means for sending the spreading code allocation information to the two user equipments via downlink control channel respectively (see for example Figures 2, 6, column 1, lines 57-67, column 2, lines 1-3, lines 19-53, column 4, lines 11-34, column 5, lines 4-42, lines 57-61, column 9, lines 7-21, lines 50-67, column 12, lines 35-59), so as to synchronize the P2P communication signals received by each of the two UEs with signals from network systems (see for example Figures 2, 6, column 1, lines 57-67, column 2, lines 1-3, lines 19-53, column 4, lines 11-34, column 5, lines 4-42, lines 57-61, column 9, lines 7-21, lines 50-67, column 10, lines 1-6, column 12, lines 35-59).

Regarding claims 2 and 14, Belcea teaches all the limitations of claims 1, 13, and further, Belcea teaches wherein said spreading code allocation information at least includes the said spreading code information being used by other user equipments in said downlink timeslot (see for example Figures 2, 6, column 1,

Art Unit: 2618

lines 57-67, column 2, lines 1-3, lines 19-53, column 4, lines 11-34, column 5, lines 4-42, lines 57-61, column 9, lines 7-21, lines 50-67, column 12, lines 35-59).

Regarding claims 3 and 15, Belcea teaches all the limitations of claims 1, 13, and further, Belcea teaches wherein said step of reducing the interference includes executing at least one of the methods Multi-User Detection (MUD) and Joint Detection (JD) (*see for example Figures 1-12, column 4, lines 11-34, column 8, lines 13-34, multiple access (user) determine (detection)*).

Regarding claims 4 and 16, Belcea teaches all the limitations of claims 1, 13, and further, Belcea teaches wherein at least one of said methods Multi-User Detection (MUD) and Joint Detection (JD) utilizes said spreading code information being used by other user equipments in said downlink timeslot to reduce interference (*see for example column 1, lines 57-67, column 2, lines 1-3, lines 19-53, column 4, lines 11-34, column 5, lines 4-42, lines 57-61, column 8, lines 13-34, column 9, lines 7-21, lines 50-67, column 10, lines 1-6, column 12, lines 35-59*).

Regarding claims 12 and 22, Belcea teaches all the limitations of claims 11, 21, and further, Belcea teaches wherein said spreading code allocation information at least includes spreading code information being used by other

user equipments in said downlink timeslot (see for example Figures 2, 6, column 1, lines 57-67, column 2, lines 1-3, lines 19-53, column 4, lines 11-34, column 5, lines 4-42, lines 57-61, column 9, lines 7-21, lines 50-67, column 12, lines 35-59).

Allowable Subject Matter

6. Claims 5-10, and 17-20 are objected

Claims 5-10, and 17-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art specifically Belcea failed to render obviousness and failed to anticipate individually the following underlined limitations:

"A method for supporting P2P (Peer to Peer) communication between two user equipments in TDD CDMA systems, performed by user equipment, comprising: receiving signals transferred via the downlink control channel by network system; acquiring the timeslot allocation information according to the received signals; acquiring the spreading code allocation information of other active user equipments allocated in the specific downlink timeslot associated with the direct link used by said user equipments, according to the received signals; and

reducing the interference caused by signals transferred via downlink from network system to said other user equipments during P2P communication according to the acquired timeslot allocation information and spreading code allocation information", "wherein said step of reducing the interference includes executing at least one of the methods Multi-User Detection (MUD) and Joint Detection (JD)", "wherein at least one of said methods Multi-User Detection (MUD) and Joint Detection (JD) utilizes said spreading code information being used by other user equipments in said downlink timeslot to reduce interference", and "establishing downlink synchronization with network system at the cell search phase, and keeping downlink synchronization with network system by tracking the pilot channel; In said downlink timeslot, when said user equipments transmitting signals via said direct link, the steps taken by said user equipment comprises: (i) during establishing said direct link, setting the time of transmitting signals to the other user equipment in said downlink timeslot, according to the received time of transmitting signals by network system; (ii) transmitting test signals to the other user equipment at said set time in said downlink timeslot; (iii) receiving feedback signal from the other user equipment, which is the time difference obtained by comparing the time at which the other user equipment receives the test signals and the received time at which the network system transmits signals in the other user equipment, after the other user equipment receiving said test signals; (iv) setting the time advance for transmitting signals to the other user equipment according to the feedback signals; and (v) adjusting the

time at which the user equipment transmits signals to the other user equipment according to time advance, in order that the signals of downlink from network system, which are received by the other user equipment, are synchronized with the signals of said direct link from the user equipment" as disclosed in claims 1, 3, 4, and 5.

"A user equipment for supporting P2P (Peer to Peer) communication in TDD CDMA systems, comprising: a signal transceiver, for receiving and transmitting radio signals; a timeslot allocation information acquiring means for acquiring the timeslot allocation information according to the information transferred via downlink control channel; a spreading code allocation information acquiring means for acquiring the spreading code allocation information of other active user equipments in a specific downlink timeslot which is used when the UE is receiving signals via the direct link between the UE and the other one, according to the information transferred via downlink control channel; and a interference reducing means for reducing the interference caused by downlink signals transmitted from network system to other user equipments during P2P communication process according to the acquired timeslot allocation information and spreading code allocation information", "wherein said interference reducing means executes at least one of the methods Multi-User Detection (MUD) and Joint Detection (JD) to reduce interference", "wherein one of said methods Multi-User Detection (MUD) and Joint Detection (JD) reduce interference by using said

Art Unit: 2618

spreading code information being used by other user equipments in said downlink timeslot", and "a synchronization means, for establishing downlink synchronization with network system at the cell search phase, and keeping downlink synchronization with the network system by tracking the pilot channel; a transmitting time setting means, for setting the time for transmitting signals to the other user equipment in said downlink timeslot, according to the time for receiving the transmitting signals from the network system, in the process of establishing the said direct link; a test signals transmitting means, for transmitting test signals to the other user equipment at the set time in said downlink timeslot; a feedback signal receiving means, for receiving feedback signals from the other user equipment, which is the time difference obtained by comparing the time for receiving test signals and the time for receiving the transmitting signals from the network system in the other user equipment, after the other user equipment receiving the test signals; a time advance setting means for setting the time advance for transmitting signals to the other user equipment; and a transmitting time adjusting means based on said feedback signals, for adjusting the transmitting time at which the user equipment transmits signals to the other user equipment according to the time advance, in order that the signals transferred via downlink from network system, which are received by the other user equipment, are synchronized with the signals transferred via said direct link from said user equipment" as disclosed in claims 13, 15, 16, and 17.

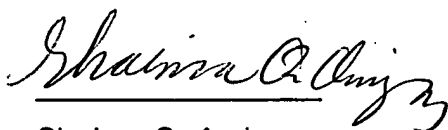
Conclusion

The prior art made of record considered pertinent to applicant's disclosure, see PTO-892 form.

Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shaima Q. Aminzay whose telephone number is 571-272-7874. The examiner can normally be reached on 7:00 AM -4:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mathew D. Anderson can be reached on 571-272-4177. The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Shaima Q. Aminzay
(Examiner)



MATTHEW ANDERSON
SUPERVISORY PATENT EXAMINER

December 2, 2006